Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Amendment of the Commission's Rules Regarding Dedicated Short-Range Communication Services in the 5.850-5.925 GHz Band (5.9 GHz Band)	)	WT Docket No. 01-90
	)	
Amendment to Parts 2 and 90 of the Commission's Rules to Allocate the 5.850-5.925 GHz Band to the Mobile Service for Dedicated Short Range Communications of Intelligent Transportation Services	)	ET Docket No. 98-95 RM-9096

COMMENTS OF
MARK IV INDUSTRIES, LTD., I.V.H.S. DIVISION

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Summary

Mark IV Industries, Ltd, I.V.H.S. Division ("Mark IV") strongly supports the Commission's initiatives to develop service rules for the 5.9 GHz band to implement Dedicated Short-Range Communications Services in the Intelligent Transportation System ("ITS") Radio Service.

The Commission should clarify that all incumbent LMS licensees in the 902-928 MHz band have legitimate expectations to continue their operations unimpaired as long as they deem appropriate to meet their responsibilities to the traveling public.

The Commission should also adopt the following proposals to foster the rapid, widespread and cost-effective availability of 5.9 GHz DSRC technologies:

- The definition of DSRC services in Section 90.7 of the Commission's rules should be expanded to include voice and non-voice status and instructional messages.

- The permitted uses of 5.9 GHz DSRC systems should include public safety and private services, provided that any such private uses are secondary to public safety uses. All such public and private uses should be subject to the same interoperability standards.

- Fixed roadside units should be licensed on a shared-use site-specific basis subject to frequency coordination. The blanket licensing options provided in Section 90.353(i) of the Commission's rules should apply in the 5.9 GHz DSRC band as well as the 902-928 MHz band. The Commission should reject the possible use of auction selection in consideration of the unique characteristics of DSRC technologies, the intent of Congress to foster public as well as private uses of 5.9 GHz DSRC systems and the expectations that the 5.9 GHz DSRC band will be primarily devoted to public safety uses.

- The Commission should adopt the ASTM-DSRC standard by reference in Part 90, Subpart M of its rules and provide that any subsequent modification or addition to that standard be approved by an ANSI-accredited standards developer will automatically become part of the applicable standards for the 5.9 GHz DSRC band.

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of Intelligent Transportation Services	)	

COMMENTS OF
MARK IV INDUSTRIES, LTD., I.V.H.S. DIVISION

Mark IV Industries, Ltd., I.V.H.S. Division ("Mark IV") herewith, by its attorneys, files its comments in response to the Commission's Notice of Proposed Rulemaking and Order (FCC 02-302) released November 15, 2002 in WT Docket No. 01-90 and ET Docket No. 98-95/RM-9096 with regard to the implementation of proposed service, technical and licensing rules for Dedicated Short-Range Communications Services ("DSRC") in the 5.850-5.925 GHz Band ("5.9 GHz Band").

BACKGROUND

Mark IV is a technology leader in electronic toll and multiple protocol transponders, next-generation readers and other m-commerce technologies. More than 10 million Mark IV transponders have been deployed in North America. These transponders are reliably and accurately processing millions of electronic toll collection ("ETC") transactions each day on toll roads, bridges and tunnels in Massachusetts, Pennsylvania, New Jersey, Delaware, New York, Virginia, West

Virginia, South Carolina, Florida and Illinois. In fact, more Mark IV transponders are installed on automobiles and commercial vehicles for ETC-equipped toll facilities than any other brand. Dual protocol Mark IV Fusion transponders now also enable commercial fleets to electronically pay tolls and comply with weigh station regulations using only one transponder.

Mark IV pioneered the technology used as the integrated ETC platform of the Interagency Group, a consortium of 18 transportation agencies and port authorities in the northeastern United States. The Interagency Group operates North America's largest seamlessly integrated toll network of highways, bridges and tunnels under the E-Zpass^{SM} brand. Mark IV transponders automatically process more than a billion toll transactions each year.

The widespread use, low-cost convenience and reliability of Mark IV transponders is also expected to enhance demand for mcommerce applications of these same technologies. Mark IV is developing next generation transponder and low-cost reader technologies for mobile transaction and access applications such as parking lots, fast-food restaurants, gated communities, airports, and other commercial applications.

INTRODUCTION

Mark IV has been an active participant in FCC proceedings leading up to the adoption of the Commission's Notice and in 5.9 GHz DSRC standards development as a member of the ASTM E-17.51 Standards Writing Group. It is also a founding and active member of the DSRC industry consortium which was formed in response to initiatives of USDOT at a DSRC Stockholders Workshop in 1999. This

consortium has made numerous presentations to the ASTM E 17.51 Writing Group and the USDOT ITS Joint Programs Office.

Mark IV strongly supports the Commission's initiatives to develop appropriate service rules to govern the licensing and use of the 5.9 GHZ band for DSRC in the Intelligent Transportation System ("ITS") radio service as follows:

- Incumbent non-multilateration LMS licensees should not be required to relocate to the 5.9 GHz DSRC band until they choose to do so.

- The Commission should expand its definition of DSRC services in Section 90.7 of its rules to include voice and non-voice status and instructional messages.

- The definition of Public Safety Services for the purposes of the Commission's 5.9 GHz DSRC rules should be expansive and inclusive so as to encompass broader needs than those provided by traditional public safety entities.

- The Commission should permit 5.9 GHz DSRC systems to provide private communications services on a secondary basis either as supplementary uses of public systems or as independent private systems.

- The Commission should adopt shared-use site-specific licensing, subject to FCC-certified frequency coordination, for fixed roadside units, and include regional blanket licensing options as provided in Section 90.353(i) of its rules.

- The Commission should reject the possible use of auction selection for 5.9 GHz DSRC licensing in consideration of the unique propagation and other technical characteristics of DSRC technologies, the clear intent of Congress to foster public as well as private use of 5.9 GHz DSRC systems, and the expectation that the 5.9 GHz band will eventually be primarily devoted to Public Safety uses.

- The Commission should adopt an ASTM-DSRC standard by reference into Part 90, Subpart M, of its rules to require that all DSRC equipment be FCC certificated to comply with this standard.

As discussed below, there are numerous compelling reasons for the Commission to adopt each of the proposals outlined here in the interest of fostering the rapid, widespread, and cost-effective availability of 5.9 GHz DSRC technologies.

DISCUSSION

1. The Commission Should Confirm the Legitimate Expectations of All Incumbent LMS Licensees to Retain the Benefits of Their Long-Term Investments in LMS Infrastructure and of Continuity of Essential Public Services Provided Over Non-Multilateration LMS Systems.

The Commission's Notice states in response to numerous comments filed earlier in these proceedings that "…[w]e do not have plans at this time to require DSRC-based ITS systems operating in the 902-928 MHz band to relocate to the 5.9 GHz band."[1] Even though the Commission has no current plans to require DSRC-based systems to relocate to the 5.9 GHz band, it should confirm in these proceedings the legitimate expectations of all incumbent LMS licensees in the 902-928 MHz band not to have their current operations impaired or terminated. Nor should the Commission alter the scope of unlicensed or underlay licensed operations in the non-multilateration portions of this band in consideration of the possible migration of these licensees to the 5.9 GHz band at some future date.

The Commission should recognize the vast scope of public resources already devoted to the implementation of the existing and planned infrastructures to support ETC, CVO and traffic monitoring on 902-928 MHz LMS systems. and the widespread public reliance on these essential systems affecting millions of highway users. The Commission should confirm the legitimate expectations of the toll collection system and other ITS licensees to continue to operate their 902-928 MHz technologies and should not require them to alter the technical parameters of their

[1] Notice, Para. 83.

systems for as long as they deem appropriate to meet their responsibilities to the traveling public. The public benefits of providing such "certainty" to the licensees of ETC, CVO and other systems including the members of the Interagency Group are self-evident.

2. The Commission Should Expand Its Definition of DSRC Services in Section 90.7 of its Rules To Permit Transmission of Voice Messages In Addition to Data.

We support the adoption of changes in the definition of DSRC Services in Section 90.7 of the Commission's rules to make this definition consistent with ASTM Standard 2213-02 which describes both the Physical and the Media Access Control Layer requirement for basic 5.9 GHz DSRC interoperability.

The definition contained in ASTM 2213-02 refers to DSRC as offering the ability "…to provide wireless communications over short distances between information sources and transactions stations on the roadside and mobile radio units, between mobile units, and between portable units and mobile units. The communications generally occur over line-of-sight distances of less than 1000m between roadside units and mostly high speed, but occasionally stopped and slow moving, vehicles or between high-speed vehicles."

We propose that the existing definition of DSRC in Section 90.7 of the Commission's rules be amended as follows to add key elements of that ASTM 2213-02 definition: "The use of radio techniques to achieve exceptionally reliable transfer of data over short distances, and with very short delivery latency, between roadside and mobile radio units, between mobile units, and between mobile and portable units to perform operations related to the improvement of traffic flow, traffic safety, and other intelligent transportation service applications in a variety of public and

commercial environments. DSRC systems may also transmit voice and non-voice status and instructional messages related to the units involved."

In previous FCC submissions, Mark IV indicated that it did not support use of DSRC for transmission of voice messages. This was originally proposed to avoid commercial wireless telephony being implemented in the same band. Based on the 5.9 GHz spectrum allocation, proposed technical standards and possible data rates, allowing voice annunciation would appear to be a compatible use, provided that it is in support of essential ITS services and not for commercial mobile operations.

3. The Commission Should Adopt an Expansive and Inclusive Definition of Public Safety Services Consistent With the Definition of Public Safety Radio Services Under Section 309(j)(2) of the Communications Act of 1934 ("Act")

We agree with the Commission's tentative conclusion that the 5.9 GHz band should be used primarily for Public Safety Services and with the Commission's analysis that the definition of Public Safety Services for the purposes of eligibility in the 5.9 GHz band should reflect the intent of Congress "…to improve the efficiency and safety of surface transportation systems."[2] The following are examples of DSRC-based services, among many, which already exist and should be deemed to be Public Safety Services.

1. ETC operations clearly promote efficient and safe highway usage, reduce harmful auto emissions, promote efficient energy usage and reduce traffic congestion. The revenues collected in this manner also provide for safer transportation facilities, road maintenance, collection of usage fees to help cover the cost of this transportation infra-structure. Toll agencies may be quasi-state bodies or may be entirely private. Both should fall within the definition of providing a safety related service on a protected basis.

[2] Notice, Para. 18.

2. CVO operations also streamline traffic through inspection facilities. These services are provided by a number of organizations, some of which are public and some of which are private or even commercial. Organizations such as PrePass, NorPass, I75 Advantage/Avion, etc. all provide similar services and provide services for Commercial vehicles that improve road safety and traffic flow.

3. Traffic monitoring is another valuable service using DSRC-based systems operated by transportation and public safety agencies to obtain timely measurements of highway usage. These systems help enhance the efficiency of use of transportation infrastructure, improve mobility, reduce traffic congestion and enable rapid emergency incident response by Public Safety agencies.

4. Airport Facility Access control is implemented at a number of locations to limit access to non-public areas of the airport to previously authorized vehicles. These controls are implemented by Airport Authorities in order to provide Safety and Security to both the staff and the general public.

Each of the foregoing examples is clearly providing a Public Safety application.

We have indicated above that in some instances the toll agencies and CVO operations providing such services may be quasi-governmental or possibly even private entities operating under state authority. We interpret the scope of the Commission's definitions of Public Safety Services to be broad enough to cover the DSRC-based services provided by all such entities.

4. The Commission Should Also Permit Shared Use of the 5.9 GHz Band, Including a Mixture of Public Safety and Private Non-Safety Uses.

We also support the concurrent need for private users to have secondary access to 5.9 GHz spectrum for private communications services which supplement

or are distinct from the provision of any Public Safety Service.[3] Such uses could include use of DSRC-based technologies for mobile transaction and access applications such as parking lots, fast food restaurants, gated communities, airports and other commercial applications. We believe that the market for such private uses will emerge more quickly and potentially could be larger than the requirements of public safety services. While the technical needs of public safety entities are essential to the successful completion of these proceedings, the needs of other private users also must be met because these users will account for such a large share of the anticipated public demand for ITS devices and will encourage product development for those devices.

We also request that the Commission interpret the definition of private internal radio systems to permit CVO operations to gather and furnish internal fleet management information to individual trucking companies on a for-profit basis. This information is a by-product of the primary function of CVO operations to facilitate vehicle inspections. It has significant utility to trucking companies, and can be efficiently gathered and disseminated using established CVO networks. The Commission's rules and policies should be flexible enough to permit this efficient additional use of CVO operations to be implemented at 5.9 GHz DSRC operations.

The Commission's licensing and interoperability rules for 5.9 GHz spectrum also should make appropriate provision for the needs of these non-public safety users. These provisions should include coordination of such private uses by a frequency coordinator and required compliance of all such private uses of the 5.9

[3] It is anticipated that such secondary access will be implemented based upon standards being created by IEEE under PAR 1609.X which will define usage rules to provide quality of service and priority use for Public Safety services.

GHz band with a common set of interoperability standards which assure priority of spectrum access for Public Safety uses. We do not recommend that the 5.9 GHz band be partitioned into separate Public Safety and private sub-bands.

5. The Commission Should License All Roadside Units on the Basis of Shared Use Site-Specific Licensing, Subject to FCC-Certified Frequency Coordination.

We support continued use of shared use site-specific licensing for fixed roadside units on a shared, site-specific basis, including use of the regional blanket license approach as provided in Section 90.353(i) of the Commission's rules. This method of awarding licenses for ETC, CVO and traffic monitoring, access and other systems is not administratively burdensome and is well understood within the industry.

Shared use site-specific licensing is also appropriate to the unique characteristics of DSRC-based systems in that they cover relatively short distances and that they will have access to a total of 75 MHz of bandwidth. The current shared use site-by-site licensing of ETC, CVO, traffic monitoring, border crossing and other ITS systems works well because they cover small isolated coverage areas, must be located at predetermined fixed points along highways and other thoroughfares, and are not deployed solely or even predominantly in metropolitan markets.

We also believe that adoption of frequency coordination requirements as a precondition for grant of licenses will help ensure that there is sufficient isolation in space, channel or time allocation to accommodate the coordinated growth of Public Safety and private uses and to provide capacity for urgent, temporary emergency

requirements. We also believe that the operating rules contained in the Upper Layer Standards being defined by IEEE under PAR 1609.X, discussed above, may provide the basis for partial automation of this coordination function.

6. The Commission Should Reject the Possible Use of Auction Selection for 5.9 GHz DSRC Licensing in Consideration of the Unique Propagation and Other Technical Characteristics of DSRC Technologies, the Clear Intent of Congress to Foster Public as Well as Private Use of 5.9 GHz DSRC Systems, and the Expectation that the 5.9 GHz Band Will Eventually Be Primarily Devoted to Public Safety Uses.

The Commission should reject the possible use of auction selection for DSRC-based services pursuant to its core "… public interest, convenience or necessity" mandate in Section 303(a) through (h) of the Act in favor of shared-use site specific licensing. The dramatic growth of LMS services under the shared use site-specific licensing adopted in the Commission's LMS Report and Order is compelling evidence that such licensing has afforded regulatory, technical, operational and spectral flexibility which is essential to implement the unique characteristics of advanced ITS services.

We believe that the public policies implicit in Section 309(j)(2) of the Act which exempts Public Safety radio services also support adoption of shared use licensing as an alternative to competitive bidding here. Preserving the continuing ability of local and state toll authorities to meet their essential spectrum needs without the jeopardy, disruption or expense of being subject to competitive bidding procedures is plainly in the public interest. The Commission has already tentatively concluded that the 5.9 GHz band should be used "primarily" for Public Safety purposes.[4] Also, adoption of interoperability standards will help assure

[4] Notice, Para. 18.

that public uses have priority of access over all private uses on shared spectrum. The public benefits from these important services which local and state agencies provide under the unique regulatory structure proposed in these comments could easily be jeopardized or precluded if these agencies were forced to bid against private entities to obtain access to 5.9 GHz spectrum.

For example, the geographic service areas typically used to define service areas for auctionable spectrum do not match the small and highly fragmented area coverage requirements of ETC, CVO, traffic monitoring, border crossing and other ITS systems. It would not be fair or reasonable to compel the licensees of such systems to bid for licenses covering typical market-based geographic service areas when only a tiny fraction of the service area involved is needed. Even with partitioning options, such licensing presents serious risks of regulatory pitfalls and of transaction costs which ETC, CVO and other ITS licensees, particularly state and local governmental entities, should not be required to take.

The public interest would also be disserved if local and state governmental entities operating ETC, CVO, traffic monitoring and border crossing systems required to bid against private or commercial entities. The current complex combination of federal and state funding to support deployment of ETC, CVO, traffic monitoring and border crossing systems would be disrupted if these entities were required to incur substantial and unpredictable liabilities to pay winning bid amounts to the U.S. Treasury to acquire needed spectrum rights. The Commission's auction procedures are not designed to compensate local and state governments through bidding credits for the unique public benefits these licensees create through the operation of their systems. On the contrary, under current

auction procedures state and local governmental entities could actually be disfavored if the Commission were to implement substantial bidding credits benefitting only commercial small business entities. Also the participation of state and local governmental entities in auctions is disadvantaged by a combination of statutory and budgetary restrictions which generally require that they be risk averse because of the public character of their activities, make decisions based on relatively long term budget cycles, rely upon federal and state funding subject to conditions as to its use and abide by procurement restrictions which do not apply to commercial entities. Under these conditions, shared use licensing should also be retained for non-multilateration LMS spectrum in order to recognize and support the unique mission of state and local governments as licensees of ETC, CVO and other ITS systems using this spectrum.

The Commission's general authority to use competitive bidding selection in Section 309(j) of the Act is specifically limited by its obligations in Section 309(j)(6)(E) of the Act to avoid mutual exclusivity where the public interest is better served by adopting shared-use site-specific licensing. As stated in the Conference Report for the Balanced Budget Act of 1997:

> "…[T]he conferees emphasize that notwithstanding its expanded auction authority, the Commission must still ensure that its determinations regarding mutual exclusivity are consistent with the Commission's obligations under Section 309(j)(6)(E). The conferees are particularly concerned that the Commission might interpret its expanded competitive bidding authority in a manner that minimizes its obligations under Section 309(j)(6)(E), thus overlooking engineering solutions, negotiations, or other tools that avoid mutual exclusivity."[5]

[5] See H.R. Conf. Rep. No. 105-217, 105th Cong., 1st Sess., at 572 (1997) ("Conference Report").

As explained in the Conference Report, the Commission is under no statutory compulsion to avoid shared use licensing which is currently relied upon for toll collection, CVO operations, traffic monitoring and other intelligent transportation applications simply because it has auction authority.

The Commission originally adopted shared use licensing for non-multilateration LMS spectrum based on the expected achievement of ambitious goals for the development of ITS infrastructure and on an extensive technical record recognizing the unique architecture and parameters of that infrastructure. By any objective measure the Commission's expectations have been exceeded in the years since shared use licensing for that spectrum was adopted. The Commission has an ample record and statutory authority to find that shared use site-specific licensing should be adopted for DSRC-based services in the 5.9 GHz band.

7. The Commission Should Adopt an ASTM-DSRC Standard in Part 90, Subpart M, of its Rules and Require That All Public and Private DSRC Equipment be FCC Certificated to Comply With Such Standard.

We support the adoption of an ASTM-DSRC Standard in Part 90, Subpart M of the Commission's rules and a related requirement that all DSRC equipment be FCC certificated to comply with this standard. We also recommend that the Commission provide in its rules that any subsequent modification or additions to the ASTM-DSRC Standards approved by an ANSI-Accredited Standards Developer will automatically become part of the applicable standards for the 5.9 GHz DSRC band.

In terms of interoperability, equipment vendors can only provide technical compatibility among products if high quality standards are in place and are well

defined. At a minimum, technical compatibility of DSRC enabling devices needs to be required in the Commission's rules if Congressionally mandated interoperability of ITS services is to be achieved. Specifically, we propose that the Commission adopt in its rules as the standard describing both Physical and Media Access Control Layer requirements for basic interoperability of 5.9 GHz DSRC devices. See ASTM E2213-02 "Standard Specification for Telecommunications and Information Exchange Between Roadside and Vehicle-5 GHz Band Dedicated Short Range Radio Communications Medium Access Control (MAC) and Physical Layer (PHY Specifications)".

Additional standards are being created by IEEE under PAR 1609.X that define the usage rules to provide quality of service and priority use for Public Safety, as well as application guidelines for device use of the spectrum. These documents will be essential in defining interoperability and to facilitate fair and cooperative use of the spectrum. When these additional standards have been completed, they should also be incorporated by reference in the Commission's rules. Considering that the Upper Layer Standards are essential elements of interoperability requirements, and hence essential to common implementations of Public Safety applications, the Commission should adopt this single set of standards in its rules for the 5.9 GHz DSRC bands.

CONCLUSION

We support the adoption of service rules to govern the licensing and use of the 5.9 GHz DSRC band which reflect the primary needs of Public Safety entities

for assured access to this band and the important but secondary needs of private entities to implement DSRC systems. The needs of both can be met on a spectrum and cost efficient basis by using shared-use site-specific licensing for all fixed DSRC-based units subject to FCC-certified frequency coordination and the inherent quality of service and priority of use requirements to be created by IEEE under the PAR 1609.X Standard for DSRC operations. Use of auction selection should be rejected as inappropriate, unworkable and counterproductive to the rapid, widespread and cost-efficient deployment of DSRC-based networks intended by Congress. The Commission should also adopt in its rules an expanded and updated definition of DSRC services and interoperability standards for all public and private DSRC devices.

Respectfully submitted,

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